

**AMENDMENTS TO THE CLAIMS**

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) An intestine dysfunction treatment apparatus, comprising:  
an electric stimulation device implantable in a patient, who suffers from intestine dysfunction,

electric conductors of the electric stimulation device adapted to directly engage with a muscle that directly or indirectly affects the transportation of the content of the patient's intestines, to electrically stimulate the muscle to increase the tonus thereof,

an internal electric source of energy implantable in the patient, and

a control device controllable from outside the patient's body to control the internal electric source of energy to release electric energy for use in connection with the power of the stimulation device, when the stimulation device is implanted, the electric energy being in the form of an alternating current through the electric conductors, the intensity of the current through the electric conductors amounting to a predetermined value,

the control device automatically controlling the electric source of energy to release more electric energy to restore the predetermined value of current intensity when the current through the conductors decreases.

2. (Cancelled)

3. (Cancelled)

4. (Cancelled)

5. (Cancelled)

6. (Previously Presented) An apparatus according to claim 1, wherein the control device controls the stimulation device.

7. (Currently amended) An apparatus according to claim 6, wherein the control device ~~is adapted to~~ controls the stimulation device to vary the intensity of the electric stimulation of the muscle over time.

8. (Original) An apparatus according to claim 7, wherein the control device is controllable from outside the patient's body to control the stimulation device to change the intensity of the electric stimulation of the muscle so that the muscle tonus is changed.

9. (Currently amended ) An apparatus according to claim 8, wherein the muscle comprises the anal sphincter, and the control device ~~is adapted to~~ continuously ~~supply~~ supplies the stimulation device with electric energy from the electric source of energy to keep the anal sphincter closed, except when the patient wants to defecate.

10. (Original) An apparatus according to claim 9, wherein the control device is controllable by the patient to control the stimulation device to increase the intensity of the electric stimulation of the anal sphincter so that the tonus of the anal sphincter is increased, when the patient feels rectum contractions.

11. (Original) An apparatus according to claim 9, wherein the control device is controllable by the patient to control the stimulation device to cease supplying the stimulation device with electric energy when the patient wants to defecate.

12. (Original) An apparatus according to claim 9, wherein the control device is controllable by the patient to control the stimulation device to decrease the intensity of the electric stimulation of the anal sphincter so that the tonus of the anal sphincter is decreased, when the patient wants to release gas from the rectum.

13. (Currently amended) An apparatus according to claim 6, wherein the muscle is capable of contracting the patient's large bowel in a wave-like manner for transporting the ~~faeces~~ feces therein, and the control device ~~is adapted to~~ controls the electric source of energy to momentarily supply the stimulation device with electric energy to cause the muscle to momentarily contract the bowel in said wave-like manner.

14. (Original) An apparatus according to claim 13, wherein the control device is controllable by the patient to power the stimulation device to cause the muscle to contract the large bowel in said wave-like manner, in order to avoid constipation.

15. (Original) An apparatus according to claim 1, further comprising at least one implantable sensor for sensing at least one physical parameter of the patient.

16. (Currently amended) An apparatus according to claim 15, wherein the muscle comprises the anal sphincter and the sensor ~~is adapted to~~ senses as the physical parameter the pressure against the anal sphincter exerted by the ~~faecal~~ fecal passageway.

17. (Currently amended) An apparatus according to claim 16, wherein the electric stimulation device ~~is adapted to~~ increases the stimulation intensity on the anal sphincter in response to the sensor sensing an abrupt increase in pressure caused by rectum contraction.

18. (Currently amended) An apparatus according to claim 15, wherein the muscle comprises the anal sphincter and the sensor ~~is adapted to~~ senses as the physical parameter the patient's orientation.

19. (Currently amended) An apparatus according to claim 18, wherein the electric stimulation device ~~is adapted to~~ decreases the stimulation intensity on the anal sphincter in response to the sensor sensing that the patient is lying down.

20. (Original) An apparatus according to claim 15, wherein the sensor comprises a pressure sensor for directly or indirectly sensing as the physical parameter the pressure in the fecal passageway of the patient.

21. (Currently amended) An apparatus according to claim 15, wherein the control device ~~is adapted to~~ controls the stimulation device in response to signals from the sensor.

22. (Original) An apparatus according to claim 21, wherein the control device comprises an internal control unit implantable in the patient, the internal control unit controlling the stimulation device in response to signals from the sensor.

23. (Original) An apparatus according to claim 22, wherein the control device comprises an external control unit outside the patient's body, the external control unit controlling the stimulation device in response to signals from the sensor.

24. (Original) An apparatus according to claim 23, wherein the external control unit stores information on the physical parameter sensed by the sensor and is manually operated to control the stimulation device based on the stored information.

25. (Original) An apparatus according to claim 15, further comprising at least one implantable sender for sending information on the physical parameter sensed by the sensor.

26. (Original) An apparatus according to claim 6, wherein the control device comprises an internal control unit implantable in the patient for controlling the stimulation device.

27. (Original) An apparatus according to claim 26, wherein the internal control unit is programmable.

28. (Original) An apparatus according to claim 27, wherein the control device comprises an external control unit intended to be outside the patient's body, the internal control unit being programmable by the external control unit.

29. (Original) An apparatus according to claim 27, wherein the internal control unit is programmable for controlling the stimulation device over time.

30. (Original) An apparatus according to claim 29, wherein the internal control unit controls the stimulation device over time in accordance with an activity schedule program.

31. (Original) An apparatus according to claim 29, wherein the internal control unit comprises a microprocessor.

32. (Original) An apparatus according to claim 28, wherein the external control unit loads the internal control unit with data in accordance with a loading mode only authorised for a doctor.

33. (Original) An apparatus according to claim 28, wherein the external control unit controls the internal control unit in accordance with a doctor mode only authorised for a doctor.

34. (Original) An apparatus according to claim 28, wherein the external control unit controls the internal control unit in accordance with a patient mode permitted for the patient.

35. (Cancelled)

36. (Cancelled)

37. (Cancelled)

38. (Cancelled)

39. (Cancelled)

40. (Cancelled)

41. (Cancelled)

42. (Cancelled)

43. (Cancelled)

44. (Cancelled)

45. (Cancelled)

46. (Cancelled)

47. (Cancelled)

48. (Previously presented) An apparatus according to claim 1, wherein the source of energy comprises an implantable internal electric source of energy comprising at least one accumulator, at least one capacitor or at least one rechargeable battery, or a combination of at least one capacitor and at least one rechargeable battery.

49. (Original) An apparatus according to claim 1, further comprising a switch implantable in the patient for directly or indirectly switching the power of the stimulation device.

50. (Previously presented) An apparatus according to claim 49, wherein the switch directly or indirectly affects the supply of electric energy from the internal electric source of energy.

51. (Original) An apparatus according to claim 50, wherein the switch switches between an "off" mode, in which the internal electric source of energy is not in use, and

an “on” mode, in which the internal electric source of energy supplies electric energy to the stimulation device.

52. (Cancelled)

53. (Cancelled)

54. (Previously presented) An apparatus according to claim 1, wherein the control device comprises a wireless remote control.

55. (Cancelled)

56. (Cancelled)

57. (Cancelled)

58. (Cancelled)

59. (Cancelled)

60. (Cancelled)

61. (Original) An apparatus according to claim 50, further comprising an energy transforming device implantable in the patient for transforming the wireless energy into electric energy, which is stored by the internal electric source of energy.



62. (Original) An apparatus according to claim 61, wherein the switch switches from an “off” mode, in which the internal electric source of energy is not in use, to an “on” mode, in which the internal source of electric energy supplies energy to the stimulation device.

63. (Original) An apparatus according to claim 62, wherein the control device controls the switch to switch between the “on” and “off” modes.

64. (Original) An apparatus according to claim 63, wherein the control device comprises a wireless remote control.

65. (Original) An apparatus according to claim 1, further comprising an external data communicator intended to be outside the patient’s body, and an internal data communicator implantable in the patient for communicating with the external communicator, wherein the internal data communicator feeds data related to the patient back to the external data communicator or the external data communicator feeds data to the internal data communicator.

66. (Original) An apparatus according to claim 65, wherein the internal data communicator feeds data related to the stimulation device.

67. (Original) An apparatus according to claim 65, wherein the internal data communicator feeds data related to at least one physical signal of the patient.

68. (Cancelled)

69. (Cancelled)

70. (Cancelled)

71. (Previously presented) An apparatus according to claim 1, wherein the control device comprises a wireless remote control for transmitting at least one wireless control signal for controlling the stimulation device.

72. (Original) An apparatus according to claim 71, wherein the remote control is capable of obtaining information on the condition of the stimulation device when the stimulation device is implanted and to control the stimulation device in response to the information.

73. (Original) An apparatus according to claim 71, wherein the wireless remote control comprises at least one external signal transmitter or transceiver and at least one internal signal receiver or transceiver implantable in the patient.

74. (Original) An apparatus according to claim 71, wherein the wireless remote control comprises at least one external signal receiver or transceiver and at least one internal signal transmitter or transceiver implantable in the patient.

75. (Original) An apparatus according to claim 71, wherein the remote control transmits a carrier signal for carrying the control signal.

76. (Original) An apparatus according to claim 75, wherein the carrier signal is frequency, amplitude or frequency and amplitude modulated.

77. (Original) An apparatus according to claim 75, wherein the carrier signal is digital, analogue or digital and analogue.

78. (Original) An apparatus according to claim 75, wherein the control signal used with the carrier signal is frequency, amplitude or frequency and amplitude modulated.

79. (Original) An apparatus according to claim 71, wherein the control signal comprises a wave signal comprising one of a sound wave signal including an ultrasound wave signal, an electromagnetic wave signal including an infrared light signal, a visible light signal, an ultra violet light signal and a laser light signal, a micro wave signal, a radio wave signal, an x-ray radiation signal, and a gamma radiation signal.

80. (Original) An apparatus according to claim 71, wherein the control signal comprises an electric, magnetic or electric and magnetic field.

81. (Original) An apparatus according to claim 71, wherein the control signal is digital, analogue or digital and analogue.

82. (Original) An apparatus according to claim 81, wherein the remote control transmits an electromagnetic carrier wave signal for carrying the digital or analogue control signal.

83. (Original) An apparatus according to claim 71, wherein the control signal is transmitted in pulses by the wireless remote control.

84. (Cancelled)

85. (Cancelled)

86. (Cancelled)

87. (Cancelled)

88. (Cancelled)

89. (Cancelled)

90. (Cancelled)

91. (Cancelled)

92. (Cancelled)

93. (Original) An apparatus according to claim 1, wherein the stimulation device is embedded in a soft or gel-like material.

94. (Original) An apparatus according to claim 1, wherein the stimulation device is embedded in a silicone material having hardness less than 20 Shore.

95. (Original) An apparatus according to claim 1, wherein the muscle comprises the anal sphincter or extends around a portion of the bowels or rectus abdominis, the stimulation device comprises a band for application around the anal sphincter or the portion of the bowels or rectus abdominis, and the band is provided with the electric conductors for engaging the muscle.

96. (Original) An apparatus according to claim 1, wherein the electric conductors comprise hooks to secure the electric conductors on the muscle.

97. (Original) An apparatus according to claim 96, wherein the hooks are to be inserted into the muscle.

98. (Previously presented) An apparatus according to claim 6, wherein the muscle comprises the rectus abdominis of the patient who has ilioostomy, jejunostomy, colostomy or rectostomy therethrough, and the control device is adapted to continuously supply the stimulation device with electric energy from the electric source of energy to stimulate the rectus abdominis to close the patient's intestines, except when the patient wants to defecate.

99. (Previously presented) An apparatus according to claim 6, wherein the muscle comprises the wall muscle of the intestines of the patient who has ilioostomy, jejunostomy, colostomy or rectostomy, and the control device is adapted to continuously supply the stimulation device with electric energy from the electric source of energy to stimulate the wall muscle of the intestines to close the intestines, except when the patient wants to defecate.

100. (Withdrawn) An intestine dysfunction treatment apparatus, comprising:  
an electric stimulation device implantable in a patient, who suffers from intestine dysfunction,

electric conductors of the electric stimulation device adapted to directly engage with a muscle that directly or indirectly affects the transportation of the content of the patient's intestines, to electrically stimulate the muscle to increase the tonus thereof,

a source of energy intended to be external to the patient's body when the stimulation device is implanted therein, and

a control device controllable from outside the patient's body and adapted to control the external source of energy to release wireless energy for use in connection with the power of the stimulation device, when the stimulation device is implanted.

101. (Withdrawn) An apparatus according to claim 100, further comprising an implantable energy transforming device for transforming wireless energy directly or indirectly into electric energy for the power of the stimulation device.

102. (Withdrawn) An apparatus according to claim 100, further comprising an internal electric source of energy implantable in the patient for storing the electric energy transformed from the wireless energy.

103. (Withdrawn) An apparatus according to claim 102, wherein the internal source of energy comprises an accumulator.

104. (Withdrawn) An apparatus according to claim 103, wherein the accumulator comprises an electric accumulator.

105. (Withdrawn) An apparatus according to claim 104, wherein the electric accumulator comprises at least one capacitor or at least one rechargeable battery, or a combination of at least one capacitor and at least one rechargeable battery.

106. (Withdrawn) An apparatus according to claim 101, wherein the energy transforming device transforms the wireless energy in the form of sound waves into electric energy for the power of the stimulation device.

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107. (Withdrawn) An apparatus according to claim 106, wherein the energy transforming device transforms the wireless energy in the form of sound waves directly into electric energy.

108. (Withdrawn) An apparatus according to claim 102, wherein the control device is adapted to supply the stimulation device with electric energy from the internal electric source of energy.

109. (Withdrawn) An apparatus according to claim 108, wherein the internal electric source of energy is adapted to provide a current through the electric conductors, and the control device is adapted to control the internal electric source of energy to release electric energy such that the intensity of the current through the electric conductors amounts to a predetermined value.

110. (Withdrawn) An apparatus according to claim 109, wherein the control device is adapted to control the internal electric source of energy to release electric energy in the form of an alternating current.

111. (Withdrawn) An apparatus according to claim 100, wherein the control device controls the stimulation device.

112. (Withdrawn) An apparatus according to claim 111, wherein the control device is adapted to control the stimulation device to vary the intensity of the electric stimulation of the muscle over time.

113. (Withdrawn) An apparatus according to claim 112, wherein the control device is controllable from outside the patient's body to control the stimulation device to change the intensity of the electric stimulation of the muscle so that the muscle tonus is changed.

114. (Withdrawn) An apparatus according to claim 113, wherein the muscle comprises the anal sphincter, and the control device is adapted to continuously supply the stimulation device with electric energy to keep the anal sphincter closed, except when the patient wants to defecate.

115. (Withdrawn) An apparatus according to claim 114, wherein the control device is controllable by the patient to control the stimulation device to increase the intensity of the electric stimulation of the anal sphincter so that the tonus of the anal sphincter is increased, when the patient feels rectum contractions.

116. (Withdrawn) An apparatus according to claim 114, wherein the control device is controllable by the patient to control the stimulation device to cease the electric stimulation of the anal sphincter when the patient wants to defecate.

117. (Withdrawn) An apparatus according to claim 114, wherein the control device is controllable by the patient to control the stimulation device to decrease the intensity of the electric stimulation of the anal sphincter so that the tonus of the anal sphincter is decreased, when the patient wants to release gas from the rectum.

118. (Withdrawn) An apparatus according to claim 111, wherein the muscle is capable of contracting the patient's large bowel in a wave-like manner for transporting the feces therein, and the control device is adapted to control the stimulation device to



momentarily stimulate the muscle to cause the muscle to momentarily contract the bowel in the wave-like manner.

119. (Withdrawn) An apparatus according to claim 118, wherein the control device is controllable by the patient to power the stimulation device to cause the muscle to contract the large bowel in said wave-like manner, in order to avoid constipation.

120. (Withdrawn) An apparatus according to claim 100, further comprising at least one implantable sensor for sensing at least one physical parameter of the patient.

121. (Withdrawn) An apparatus according to claim 120, wherein the muscle comprises the anal sphincter and the sensor is adapted to sense as the physical parameter the pressure against the anal sphincter exerted by the faecal passageway.

122. (Withdrawn) An apparatus according to claim 121, wherein the electric stimulation device is adapted to increase the stimulation intensity on the anal sphincter in response to the sensor sensing an abrupt increase in pressure caused by rectum contraction.

123. (Withdrawn) An apparatus according to claim 120, wherein the muscle comprises the anal sphincter and the sensor is adapted to sense as the physical parameter the patient's orientation.

124. (Withdrawn) An apparatus according to claim 123, wherein the electric stimulation device is adapted to decrease the stimulation intensity on the anal sphincter in response to the sensor sensing that the patient is lying.

125. (Withdrawn) An apparatus according to claim 120, wherein the sensor comprises a pressure sensor for directly or indirectly sensing as the physical parameter the pressure in the fecal passageway of the patient.

126. (Withdrawn) An apparatus according to claim 120, wherein the control device is adapted to control the stimulation device in response to signals from the sensor.

127. (Withdrawn) An apparatus according to claim 126, wherein the control device comprises an internal control unit implantable in the patient, the internal control unit controlling the stimulation device in response to signals from the sensor.

128. (Withdrawn) An apparatus according to claim 127, wherein the control device comprises an external control unit outside the patient's body, the external control unit controlling the stimulation device in response to signals from the sensor.

129. (Withdrawn) An apparatus according to claim 128, wherein the external control unit stores information on the physical parameter sensed by the sensor and is manually operated to control the stimulation device based on the stored information.

130. (Withdrawn) An apparatus according to claim 120, further comprising at least one implantable sender for sending information on the physical parameter sensed by the sensor.

131. (Withdrawn) An apparatus according to claim 111, wherein the control device comprises an internal control unit implantable in the patient for controlling the stimulation device.

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132. (Withdrawn) An apparatus according to claim 131, wherein the internal control unit is programmable.

133. (Withdrawn) An apparatus according to claim 132, wherein the control device comprises an external control unit intended to be outside the patient's body, the internal control unit being programmable by the external control unit.

134. (Withdrawn) An apparatus according to claim 132, wherein the internal control unit is programmable for controlling the stimulation device over time.

135. (Withdrawn) An apparatus according to claim 134, wherein the internal control unit controls the stimulation device over time in accordance with an activity schedule program.

136. (Withdrawn) An apparatus according to claim 134, wherein the internal control unit comprises a microprocessor.

137. (Withdrawn) An apparatus according to claim 133, wherein the external control unit loads the internal control unit with data in accordance with a loading mode only authorised for a doctor.

138. (Withdrawn) An apparatus according to claim 133, wherein the external control unit controls the internal control unit in accordance with a doctor mode only authorised for a doctor.

139. (Withdrawn) An apparatus according to claim 133, wherein the external control unit controls the internal control unit in accordance with a patient mode permitted for the patient.

140. (Withdrawn) An apparatus according to claim 100, further comprising a switch implantable in the patient for directly or indirectly switching the power of the stimulation device.

141. (Withdrawn) An apparatus according to claim 140, further comprising an internal electric source of energy implantable in the patient for supplying electric energy to the stimulation device, wherein the switch directly or indirectly affects the supply of electric energy from the internal electric source of energy.

142. (Withdrawn) An apparatus according to claim 141, wherein the switch switches between an “off” mode, in which the internal electric source of energy is not in use, and an “on” mode, in which the internal electric source of energy supplies electric energy to the stimulation device.

143. (Withdrawn) An apparatus according to claim 141, further comprising an energy transforming device implantable in the patient for transforming the wireless energy into electric energy, which is stored by the internal electric source of energy.

144. (Withdrawn) An apparatus according to claim 143, wherein the switch switches from an “off” mode, in which the internal electric source of energy is not in use, to an “on” mode, in which the internal source of electric energy supplies energy to the stimulation device.

145. (Withdrawn) An apparatus according to claim 144, wherein the control device controls the switch to switch between the “on” and “off” modes.

146. (Withdrawn) An apparatus according to claim 100, further comprising, an external data communicator intended to be outside the patient’s body, and an internal data communicator implantable in the patient for communicating with the external communicator, wherein the internal data communicator feeds data related to the patient back to the external data communicator or the external data communicator feeds data to the internal data communicator.

147. (Withdrawn) An apparatus according to claim 146, wherein the internal data communicator feeds data related to the stimulation device.

148. (Withdrawn) An apparatus according to claim 146, wherein the internal data communicator feeds data related to at least one physical signal of the patient.

149. (Withdrawn) An apparatus according to claim 100, wherein the control device comprises a wireless remote control.

150. (Withdrawn) An apparatus according to claim 149, wherein the wireless remote control transmits at least one wireless control signal for controlling the stimulation device.

151. (Withdrawn) An apparatus according to claim 150, wherein the remote control is capable of obtaining information on the condition of the stimulation device when the stimulation device is implanted and to control the stimulation device in response to the information.

152. (Withdrawn) An apparatus according to claim 150, wherein the wireless remote control comprises at least one external signal transmitter or transceiver and at least one internal signal receiver or transceiver implantable in the patient.

153. (Withdrawn) An apparatus according to claim 150, wherein the wireless remote control comprises at least one external signal receiver or transceiver and at least one internal signal transmitter or transceiver implantable in the patient.

154. (Withdrawn) An apparatus according to claim 150, wherein the remote control transmits a carrier signal for carrying the control signal.

155. (Withdrawn) An apparatus according to claim 154, wherein the carrier signal is frequency, amplitude or frequency and amplitude modulated.

156. (Withdrawn) An apparatus according to claim 154, wherein the carrier signal is digital, analogue or digital and analogue.

157. (Withdrawn) An apparatus according to claim 154, wherein the control signal used with the carrier signal is frequency, amplitude or frequency and amplitude modulated.

158. (Withdrawn) An apparatus according to claim 150, wherein the control signal comprises a wave signal comprising one of a sound wave signal including an ultrasound wave signal, an electromagnetic wave signal including an infrared light signal, a visible light signal, an ultra violet light signal and a laser light signal, a micro wave signal, a radio wave signal, an x-ray radiation signal, and a gamma radiation signal.

159. (Withdrawn) An apparatus according to claim 150, wherein the control signal comprises an electric, magnetic or electric and magnetic field.

160. (Withdrawn) An apparatus according to claim 150, wherein the control signal is digital, analogue or digital and analogue.

161. (Withdrawn) An apparatus according to claim 160, wherein the remote control transmits an electromagnetic carrier wave signal for carrying the digital or analogue control signal.

162. (Withdrawn) An apparatus according to claim 150, wherein the control signal is transmitted in pulses by the wireless remote control.

163. (Withdrawn) An apparatus according to claim 100, further comprising an implantable stabiliser for stabilising the wireless energy released by the control device.

164. (Withdrawn) An apparatus according to claim 163, wherein the wireless energy released by the control device comprises electric energy and the stabiliser comprises at least one capacitor.

165. (Withdrawn) An apparatus according to claim 100, wherein the wireless energy comprises electromagnetic waves excluding radio waves.

166. (Withdrawn) An apparatus according to claim 100, wherein the wireless energy comprises a signal.

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167. (Withdrawn) An apparatus according to claim 100, wherein the stimulation device is embedded in a soft or gel-like material.

168. (Withdrawn) An apparatus according to claim 100, wherein the stimulation device is embedded in a silicone material having hardness less than 20 Shore.

169. (Withdrawn) An apparatus according to claim 100, wherein the muscle comprises the anal sphincter or extends around a portion of the bowels or rectus abdominis, the stimulation device comprises a band for application around the anal sphincter or the portion of the bowels or rectus abdominis, and the band is provided with the electric conductors for engaging the muscle.

170. (Withdrawn) An apparatus according to claim 100, wherein the electric conductors comprise hooks to secure the electric conductors on the muscle.

171. (Withdrawn) An apparatus according to claim 170, wherein the hooks are to be inserted into the muscle.

172. (Withdrawn) An apparatus according to claim 111, wherein the muscle comprises the rectus abdominis of the patient who has ileostomy, jejunostomy, colostomy or rectostomy, and the control device is adapted to control the stimulation device to continuously stimulate the rectus abdominis to close the patient's intestines, except when the patient wants to defecate.

173. (Withdrawn) An apparatus according to claim 111, wherein the muscle comprises the wall muscle of the intestines of the patient who has ileostomy, jejunostomy, colostomy or rectostomy, and the control device is adapted to control the stimulation



device to continuously stimulate the wall muscle of the intestines to close the intestines, except when the patient wants to defecate.

174. (Withdrawn) An intestine dysfunction treatment apparatus, comprising:  
an electric stimulation device implantable in a patient, who suffers from intestine dysfunction,

electric conductors of the electric stimulation device adapted to directly engage with a muscle that directly or indirectly affects the transportation of the content of the patient's intestines, to electrically stimulate the muscle to increase the tonus thereof,

an external data communicator intended to be outside the patient's body, and

an internal data communicator implantable in the patient for communicating with the external communicator, wherein the internal data communicator feeds data related to the patient back to the external data communicator or the external data communicator feeds data to the internal data communicator.

175. (Withdrawn) An apparatus according to claim 174, wherein the internal data communicator feeds data related to the stimulation device.

176. (Withdrawn) An apparatus according to claim 174, wherein the internal data communicator feeds data related to at least one physical signal of the patient.

177. (Withdrawn) An apparatus according to claim 174, further comprising a source of energy, and a control device controllable from outside the patient's body for controlling the source of energy to release energy for use in connection with the power of the stimulation device, when the stimulation device is implanted.

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178. (Withdrawn) An apparatus according to claim 177, wherein the source of energy comprises an electric source of energy and the control device is adapted to supply the stimulation device with electric energy from the electric source of energy.

179. (Withdrawn) An apparatus according to claim 178, wherein the electric source of energy is adapted to provide a current through the electric conductors, and the control device is adapted to control the electric source of energy to release electric energy such that the intensity of the current through the electric conductors amounts to a predetermined value.

180. (Withdrawn) An apparatus according to claim 179, wherein the control device is adapted to control the electric source of energy to release electric energy in the form of an alternating current.

181. (Withdrawn) An apparatus according to claim 178, wherein the control device controls the stimulation device.

182. (Withdrawn) An apparatus according to claim 181, wherein the control device is adapted to control the stimulation device to vary the intensity of the electric stimulation of the muscle over time.

183. (Withdrawn) An apparatus according to claim 182, wherein the control device is controllable from outside the patient's body to control the stimulation device to change the intensity of the electric stimulation of the muscle so that the muscle tonus is changed.

184. (Withdrawn) An apparatus according to claim 183, wherein the muscle comprises the anal sphincter, and the control device is adapted to continuously supply the stimulation device with electric energy from the electric source of energy to keep the anal sphincter closed, except when the patient wants to defecate.

185. (Withdrawn) An apparatus according to claim 184, wherein the control device is controllable by the patient to control the stimulation device to increase the intensity of the electric stimulation of the anal sphincter so that the tonus of the anal sphincter is increased, when the patient feels rectum contractions.

186. (Withdrawn) An apparatus according to claim 184, wherein the control device is controllable by the patient to control the stimulation device to cease supplying the stimulation device with electric energy when the patient wants to defecate.

187. (Withdrawn) An apparatus according to claim 184, wherein the control device is controllable by the patient to control the stimulation device to decrease the intensity of the electric stimulation of the anal sphincter so that the tonus of the anal sphincter is decreased, when the patient wants to release gas from the rectum.

188. (Withdrawn) An apparatus according to claim 181, wherein the muscle is capable of contracting the patient's large bowel in a wave-like manner for transporting the faeces therein, and the control device is adapted to control the electric source of energy to momentarily supply the stimulation device with electric energy to cause the muscle to momentarily contract the bowel in said wave-like manner.

189. (Withdrawn) An apparatus according to claim 188, wherein the control device is controllable by the patient to power the stimulation device to cause the muscle to contract the large bowel in said wave-like manner, in order to avoid constipation.

190. (Withdrawn) An apparatus according to claim 100, further comprising at least one implantable sensor for sensing at least one physical parameter of the patient.

191. (Withdrawn) An apparatus according to claim 190, wherein the muscle comprises the anal sphincter and the sensor is adapted to sense as the physical parameter the pressure against the anal sphincter exerted by the faecal passageway.

192. (Withdrawn) An apparatus according to claim 191, wherein the electric stimulation device is adapted to increase the stimulation intensity on the anal sphincter in response to the sensor sensing an abrupt increase in pressure caused by rectum contraction.

193. (Withdrawn) An apparatus according to claim 190, wherein the muscle comprises the anal sphincter and the sensor is adapted to sense as the physical parameter the patient's orientation.

194. (Withdrawn) An apparatus according to claim 193, wherein the electric stimulation device is adapted to decrease the stimulation intensity on the anal sphincter in response to the sensor sensing that the patient is lying.

195. (Withdrawn) An apparatus according to claim 190, wherein the sensor comprises a pressure sensor for directly or indirectly sensing as the physical parameter the pressure in the faecal passageway of the patient.

196. (Withdrawn) An apparatus according to claim 190, further comprising a control device adapted to control the stimulation device in response to signals from the sensor.

197. (Withdrawn) An apparatus according to claim 196, wherein the control device comprises an internal control unit implantable in the patient, the internal control unit controlling the stimulation device in response to signals from the sensor.

198. (Withdrawn) An apparatus according to claim 197, wherein the control device comprises an external control unit outside the patient's body, the external control unit controlling the stimulation device in response to signals from the sensor.

199. (Withdrawn) An apparatus according to claim 198, wherein the external control unit stores information on the physical parameter sensed by the sensor and is manually operated to control the stimulation device based on the stored information.

200. (Withdrawn) An apparatus according to claim 190, further comprising at least one implantable sender for sending information on the physical parameter sensed by the sensor.

201. (Withdrawn) An apparatus according to claim 181, wherein the control device comprises an internal control unit implantable in the patient for controlling the stimulation device.

202. (Withdrawn) An apparatus according to claim 201, wherein the internal control unit is programmable.

203. (Withdrawn) An apparatus according to claim 202, wherein the control device comprises an external control unit intended to be outside the patient's body, the internal control unit being programmable by the external control unit.

204. (Withdrawn) An apparatus according to claim 202, wherein the internal control unit is programmable for controlling the stimulation device over time.

205. (Withdrawn) An apparatus according to claim 204, wherein the internal control unit controls the stimulation device over time in accordance with an activity schedule program.

206. (Withdrawn) An apparatus according to claim 204, wherein the internal control unit comprises a microprocessor.

207. (Withdrawn) An apparatus according to claim 203, wherein the external control unit loads the internal control unit with data in accordance with a loading mode only authorised for a doctor.

208. (Withdrawn) An apparatus according to claim 203, wherein the external control unit controls the internal control unit in accordance with a doctor mode only authorised for a doctor.

209. (Withdrawn) An apparatus according to claim 203, wherein the external control unit controls the internal control unit in accordance with a patient mode permitted for the patient.

210. (Withdrawn) An apparatus according to claim 177, wherein the source of energy is intended to be external to the patient's body when the stimulation device is implanted therein, and the control device is adapted to control the external source of energy to release wireless energy for use in connection with the power of the stimulation device.

211. (Withdrawn) An apparatus according to claim 210, further comprising an energy storage device implantable in the patient for storing the wireless energy released from the external source of energy.

212. (Withdrawn) An apparatus according to claim 211, wherein the energy storage device comprises an accumulator.

213. (Withdrawn) An apparatus according to claim 212, wherein the accumulator comprises an electric accumulator.

214. (Withdrawn) An apparatus according to claim 213, wherein the electric accumulator comprises at least one capacitor or at least one rechargeable battery, or a combination of at least one capacitor and at least one rechargeable battery.

215. (Withdrawn) An apparatus according to claim 177, wherein the source of energy comprises an implantable internal source of energy.

216. (Withdrawn) An apparatus according to claim 215, wherein the internal source of energy comprises an electric source of energy.

217. (Withdrawn) An apparatus according to claim 216, wherein the internal electric source of energy comprises at least one accumulator, at least one capacitor or at least one rechargeable battery, or a combination of at least one capacitor and at least one rechargeable battery.

218. (Withdrawn) An apparatus according to claim 174, further comprising a switch implantable in the patient for directly or indirectly switching the power of the stimulation device.

219. (Withdrawn) An apparatus according to claim 218, further comprising an internal electric source of energy implantable in the patient for supplying electric energy to the stimulation device, wherein the switch directly or indirectly affects the supply of electric energy from the internal electric source of energy.

220. (Withdrawn) An apparatus according to claim 219, wherein the switch switches between an “off” mode, in which the internal electric source of energy is not in use, and an “on” mode, in which the internal electric source of energy supplies electric energy to the stimulation device.

221. (Withdrawn) An apparatus according to claim 219, further comprising an energy transforming device implantable in the patient for transforming the wireless energy into electric energy, which is stored by the internal electric source of energy.

222. (Withdrawn) An apparatus according to claim 221, wherein the switch switches from an “off” mode, in which the internal electric source of energy is not in use, to an “on” mode, in which the internal source of electric energy supplies energy to the stimulation device.



223. (Withdrawn) An apparatus according to claim 222, wherein the control device controls the switch to switch between the “on” and “off” modes.

224. (Withdrawn) An apparatus according to claim 174, wherein the control device comprises a wireless remote control.

225. (Withdrawn) An apparatus according to claim 224, wherein the wireless remote control transmits at least one wireless control signal for controlling the stimulation device.

226. (Currently amended/Withdrawn) An apparatus according to claim ~~226~~224, wherein the remote control is capable of obtaining information on the condition of the stimulation device when the stimulation device is implanted and to control the stimulation device in response to the information.

227. (Withdrawn) An apparatus according to claim 226, wherein the wireless remote control comprises at least one external signal transmitter or transceiver and at least one internal signal receiver or transceiver implantable in the patient.

228. (Withdrawn) An apparatus according to claim 226, wherein the wireless remote control comprises at least one external signal receiver or transceiver and at least one internal signal transmitter or transceiver implantable in the patient.

229. (Withdrawn) An apparatus according to claim 226, wherein the remote control transmits a carrier signal for carrying the control signal.

230. (Withdrawn) An apparatus according to claim 229, wherein the carrier signal is frequency, amplitude or frequency and amplitude modulated.

231. (Withdrawn) An apparatus according to claim 229, wherein the carrier signal is digital, analogue or digital and analogue.

232. (Withdrawn) An apparatus according to claim 229, wherein the control signal used with the carrier signal is frequency, amplitude or frequency and amplitude modulated.

233. (Withdrawn) An apparatus according to claim 226, wherein the control signal comprises a wave signal comprising one of a sound wave signal including an ultrasound wave signal, an electromagnetic wave signal including an infrared light signal, a visible light signal, an ultra violet light signal and a laser light signal, a micro wave signal, a radio wave signal, an x-ray radiation signal, and a gamma radiation signal.

234. (Withdrawn) An apparatus according to claim 226, wherein the control signal comprises an electric, magnetic or electric and magnetic field.

235. (Withdrawn) An apparatus according to claim 226, wherein the control signal is digital, analogue or digital and analogue.

236. (Withdrawn) An apparatus according to claim 236, wherein the remote control transmits an electromagnetic carrier wave signal for carrying the digital or analogue control signal.

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237. (Withdrawn) An apparatus according to claim 226, wherein the control signal is transmitted in pulses by the wireless remote control.

238. (Withdrawn) An apparatus according to claim 210, further comprising an implantable stabiliser for stabilising the wireless energy released by the control device.

239. (Withdrawn) An apparatus according to claim 238, wherein the wireless energy released by the control device comprises electric energy and the stabiliser comprises at least one capacitor.

240. (Withdrawn) An apparatus according to claim 210, wherein the wireless energy comprises electromagnetic waves excluding radio waves.

241. (Withdrawn) An apparatus according to claim 210, wherein the wireless energy comprises a signal.

242. (Withdrawn) An apparatus according to claim 210, wherein the stimulation device is embedded in a soft or gel-like material.

243. (Withdrawn) An apparatus according to claim 210, wherein the stimulation device is embedded in a silicone material having hardness less than 20 Shore.

244. (Withdrawn) An apparatus according to claim 210, wherein the muscle comprises the anal sphincter or extends around a portion of the bowels or rectus abdominis, the stimulation device comprises a band for application around the anal sphincter or the portion of the bowels or rectus abdominis, and the band is provided with the electric conductors for engaging the muscle.

245. (Withdrawn) An apparatus according to claim 174, wherein the electric conductors comprise hooks to secure the electric conductors on the muscle.

246. (Withdrawn) An apparatus according to claim 245, wherein the hooks are to be inserted into the muscle.

247. (Withdrawn) An apparatus according to claim 181, wherein the muscle comprises the rectus abdominis of the patient who has ileostomy, jejunostomy, colostomy or rectostomy, and the control device is adapted to control the stimulation device to continuously stimulate the rectus abdominis to close the patient's intestines, except when the patient wants to defecate.

248. (Withdrawn) An apparatus according to claim 181, wherein the muscle comprises the wall muscle of the intestines of the patient who has ileostomy, jejunostomy, colostomy or rectostomy, and the control device is adapted to control the stimulation device to continuously stimulate the wall muscle of the intestines to close the intestines, except when the patient wants to defecate.

249. (Currently Amended) An intestine dysfunction treatment apparatus, comprising:

an electric stimulation device implantable in a patient, who suffers from intestine dysfunction,

electric conductors of the electric stimulation device adapted to directly engage with a muscle that is capable of contracting the patient's large bowel in a wave-like

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manner for transporting the ~~faeces~~ feces therein, to electrically stimulate the muscle to increase the tonus thereof,

an electric source of energy, and

a control device controllable from outside the patient's body, wherein the control device is adapted to control the stimulation device and the electric source of energy to momentarily supply the stimulation device with electric energy to cause the muscle to momentarily contract the bowel in said wave-like manner,

the electric source of energy releasing the electric energy in the form of an alternating current through the electric conductors, the intensity of the current through the electric conductors amounting to a predetermined value,

the control device automatically controlling the electric source of energy to release more electric energy to restore the predetermined value of current intensity when the current through the electric conductors decreases .

250. (Previously presented) An apparatus according to claim 249, wherein the control device is controllable by the patient to power the stimulation device to cause the muscle to contract the large bowel in said wave-like manner, in order to avoid constipation.

251. (Withdrawn) An intestine dysfunction treatment apparatus, comprising:  
an electric stimulation device implantable in a patient, who suffers from intestine dysfunction,

electric conductors of the electric stimulation device adapted to directly engage with the patient's anal sphincter to electrically stimulate the muscle to increase the tonus thereof, and

at least one implantable sensor for sensing at least one physical parameter of the patient, wherein the sensor is adapted to sense as the physical parameter the patient's

orientation.

252. (Withdrawn) An apparatus according to claim 251, wherein the electric stimulation device is adapted to decrease the stimulation intensity on the anal sphincter in response to the sensor sensing that the patient is lying down.

253. (Withdrawn) An intestine dysfunction treatment apparatus, comprising:  
an electric stimulation device implantable in a patient, who suffers from intestine dysfunction,

electric conductors of the electric stimulation device adapted to directly engage with a muscle that directly or indirectly affects the transportation of the content of the patient's intestines, to electrically stimulate the muscle to increase the tonus thereof,

an implantable internal electric source of energy,

wherein the internal electric source of energy comprises at least one accumulator, at least one capacitor or at least one rechargeable battery, or a combination of at least one capacitor and at least one rechargeable battery.

254. (Previously presented) An intestine dysfunction treatment apparatus,  
comprising:

an electric stimulation device implantable in a patient, who suffers from intestine dysfunction,

electric conductors of the electric stimulation device adapted to directly engage with a muscle that directly or indirectly affects the transportation of the content of the patient's intestines, to electrically stimulate the muscle to increase the tonus thereof, wherein the electric conductors comprise hooks to secure the electric conductors on the muscle.

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255. (Previously presented) An apparatus according to claim 254, wherein the hooks are to be inserted into the muscle.